

REMARKS

Prior to entry of this amendment, claims 1-49 are pending in the application. Applicants amended claims 1, 10, 21, 22, 31, and 42. No new matter has been added.

Applicants appreciate the Examiner's acknowledgement of applicants' claim for foreign priority and receipt of a certified copy of the priority document.

Applicants further appreciate the Examiner's acceptance of the original drawings filed on April 15, 2004.

Applicants further appreciate the Examiner's consideration of applicants' Information Disclosure Statements filed November 8, 2004, January 25, 2005, and May 15, 2006.

A. Introduction

In the outstanding non-final Office action, the Examiner rejected claims 10, 11, 31 and 32 under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter; rejected claims 1-6, 9-11, 15, 19, 42, 43, 47 and 49 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,673,692 to Schulze et al. ("the Schulze et al. reference"); rejected claims 7 and 44 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference and further in view of U.S. Patent Publication No. 2002/0042558 to Mendelson ("the Mendelson reference"); rejected claims 8 and 12 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference and further in view of U.S. Patent No. 5,002,060 to Nedivi ("the Nedivi reference"); rejected claims 13, 14, 17, 18, 21-27, 30-32, 34-36, 38-40 and 48 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference and further in view of U.S. Patent No. 6,078,829 to Uchida et al. ("the Uchida et al. reference"); rejected claim 28 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference, further in view of the Uchida et al. reference and further in view of the Mendelson reference; rejected claims 29 and 33 under 35

U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference, further in view of the Uchida et al. reference and further in view of the Nedivi reference; rejected claim 45 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference and further in view of U.S. Patent Publication No. 2003/0163054 to Dekker (“the Dekker reference”); rejected claims 16 and 20 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference and further in view of U.S. Patent No. 6,454,705 to Cosentino et al. (“the Cosentino et al. reference”); rejected claims 37 and 41 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference, further in view of the Uchida et al. reference and further in view of the Cosentino et al. reference; and rejected claim 46 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference and further in view of U.S. Patent No. 6,816,741 to Diab (“the Diab reference”).

B. Rejection of Claims 10, 11, 31 and 32 as Being Directed to Non-Statutory Subject Matter

In the outstanding non-final Office action, the Examiner rejected claims 10, 11, 31, and 32 under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Applicants amended claims 10 and 31 in a manner suggested by the Examiner. Applicants respectfully request that the rejection of claims 10 and 31 under 35 U.S.C. § 101 be withdrawn. Since claims 11 and 32 were rejected by virtue of their dependency on claims 10 and 31, respectively, applicants respectfully request that the rejection of claims 11 and 32 under 35 U.S.C. § 101 also be withdrawn.

C. Asserted Anticipation Rejection of Claims 1-6, 9-11, 15, 19, 42, 43, 47 and 49

In the outstanding non-final Office action, the Examiner rejected claims 1-6, 9-11, 15, 19, 42, 43, 47 and 49 under 35 U.S.C. § 102(b) as being anticipated by the Schulze et al. reference.

Claims 1 and 42 have been amended to more clearly recite the present invention. It is now respectfully submitted that these claims are allowable over the Schulze et al. reference, for at least the following reasons.

Claim 1 is directed to an apparatus for measuring a bio signal having, *inter alia*, a control unit. The control unit performs different functions according to whether a signal received by the control unit corresponds to a sound signal or a bio signal. That is, when the signal received by the control unit corresponds to the sound signal, the control unit provides the sound signal to an earphone, and when the signal received by the control unit corresponds to the bio signal, the control unit provides the bio signal to an output unit, such as a display unit. Applicants respectfully submit that the Schulze et al. reference fails to disclose or suggest the apparatus for measuring a bio signal having a control unit as claimed in claim 1.

Further, applicants respectfully submit that the other prior art references cited by the Examiner, also fail to disclose or suggest the apparatus for measuring a bio signal having a control unit as claimed in claim 1. That is, the Mendelson reference, the Nedivi reference, the Uchida et al. reference, the Dekker reference, the Cosentino et al. reference, and the Diab reference fail to disclose or suggest the apparatus for measuring a bio signal having a control unit as claimed in claim 1.

Applicants note that the Examiner relies on the Uchida et al. reference as teaching an earphone (speaker 8 illustrated in FIG. 2) and the signal processor 10 that converts biological information into the form of acoustic signals (col. 5). However, the apparatus for measuring a bio signal having a control unit as claimed in claim 1 is patentably distinguished over the teachings of the Uchida et al. reference.

The apparatus for measuring a bio signal having a control unit as claimed in claim 1 is capable of receiving a bio information signal and a sound signal simultaneously. That is, it is possible to listen to the sound signal, such as music, during measurement and output of the bio information, without *any disturbance*, since *only the sound signal* is provided to the earphone (*emphasis added*).. However, the Uchida et al. reference discloses that “[t]he acoustic signal control unit 14 in the signal processor 10 converts into acoustic signals the biological information worked out by the biological information arithmetic unit 12, and forwards those signals to the speaker 8” (col. 5, lines 33-37). The Uchida et al. reference also discloses if a sensor element 1 has a function of an earphone, it reproduces music via the sensor element *when the bio signal is not measured (emphasis added)*(col. 5, lines 44-49). In addition, the Uchida et al. reference discloses that “[e]ven in measurement, while playing music or the like using the reproduction medium, the acoustic signals for biological information or other messages such as the start or the end of the measurement may be *superimposed* on the much [sic] sound or may be *sounded out* with the sound interrupted” (col. 5, lines 49-53). As a result, the allegedly corresponding signal processor 10 and sensor 1 of the Uchida et al. reference do not provide uninterrupted listening of sound signals, such as music, when measurement of the bio signal and reproduction of the music are performed simultaneously.

Thus, when considering the prior art as a whole, individually or in combination, applicants respectfully submit that the apparatus for measuring a bio signal having a control unit as claimed in claim 1 is neither disclosed nor suggested.

For at least these reasons, applicants respectfully submit that the rejection of claim 1 under 35 U.S.C. § 102(b) be withdrawn. Since claims 2-6, 9-11, 15, and 19 are patentable at

least by virtue of their dependency on claim 1, applicants respectfully request that the rejection of claims 2-6, 9-11, 15 and 19 under 35 U.S.C. § 102(b) also be withdrawn.

Claim 42 is directed to a method of measuring a bio signal having, *inter alia*, outputting the at least one bio signal measured in (a) and (b) by the control unit. That is, the control unit outputs a received signal to the output unit when the received signal corresponds to the bio signal, and outputs the received signal to an earphone when the received signal corresponds to the sound signal.

For at least the reasons analogous to those stated above in regard to claim 1, applicants respectfully request the rejection of claim 42 under 35 U.S.C. § 102(b) be withdrawn. Since claims 43, 47, and 49 are patentable at least by virtue of their dependency on claim 42, applicants respectfully request that the rejection of claims 43, 47, and 49 under 35 U.S.C. § 102(b) also be withdrawn.

D. Asserted Obviousness Rejection of Claims 7 and 44

In the outstanding non-final Office action, the Examiner rejected claims 7 and 44 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference and further in view of the Mendelson reference.

As discussed above in section C, applicants respectfully submit that the Mendelson reference fails to compensate for the deficiencies of the Schulze et al. reference. The Schulze et al. reference and the Mendelson reference, individually or in combination, fail to teach or suggest the apparatus for measuring a bio signal having a control unit as claimed in claim 1 or the method of measuring a bio signal having the outputting step as claimed in claim 42.

Since claim 7 is at least patentable by virtue of its dependency on claim 1, applicants respectfully request that the rejection of claim 7 under 35 U.S.C. § 103(a) be withdrawn.

Since claim 44 is at least patentable by virtue of its dependency on claim 42, applicants respectfully request that the rejection of claim 44 under 35 U.S.C. § 103(a) be withdrawn.

E. Asserted Obviousness Rejection of Claims 8 and 12

In the outstanding non-final Office action, the Examiner rejected claims 8 and 12 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference and further in view of the Nedivi reference.

As discussed above in section C, applicants respectfully submit that the Nedivi reference fails to compensate for the deficiencies of the Schulze et al. reference. The Schulze et al. reference and the Nedivi reference, individually or in combination, fail to teach or suggest the apparatus for measuring a bio signal having the control unit as claimed in claim 1.

Since claims 8 and 12 are at least patentable by virtue of their dependency on claim 1, applicants respectfully request that the rejection of claims 8 and 12 under 35 U.S.C. § 103(a) be withdrawn.

F. Asserted Obviousness Rejection of Claims 13, 14, 17, 18, 21-27, 30-32, 34-36, 38-40 and 48

In the outstanding non-final Office action, the Examiner rejected claims 13, 14, 17, 18, 21-27, 30-32, 34-36, 38-40 and 48 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference in view of the Uchida et al. reference.

As discussed above in section C, applicants respectfully submit that the Uchida et al. reference fails to compensate for the deficiencies of the Schulze et al. reference. The Schulze et al. reference and the Uchida et al. reference, individually or in combination, fail to teach or suggest the apparatus for measuring a bio signal having the control unit as claimed in claim 1 or the method of measuring a bio signal having the outputting step as claimed in claim 42.

Since claims 13, 14, 17, 18, and 21 are at least patentable by virtue of their dependency on claim 1, applicants respectfully request that the rejection of claims 13, 14, 17, 18, and 21 under 35 U.S.C. § 103(a) be withdrawn.

Since claim 48 is at least patentable by virtue of its dependency on claim 42, applicants respectfully request that the rejection of claim 48 under 35 U.S.C. § 103(a) be withdrawn.

Regarding claims 22-27, 30-32, 34-36, and 38-40, applicants note the following. Applicants amended claim 22 to more clearly recite the present invention. Independent claim 22 is directed to an apparatus for measuring a bio signal having, *inter alia*, a first plurality of electrodes and a second plurality of electrodes. That is, in order to integrate the bio information measurement unit and the earphone, the bio information measurement unit has a first plurality of electrodes for outputting a PPG signal, and the earphone has a second plurality of electrodes connected to the first plurality of electrodes.

The Uchida et al. reference fails to disclose or suggest these elements of claim 22. While the grounds of rejection set forth that FIG. 2 of the Uchida et al. reference illustrates an earphone with a plurality of electrodes on an outer surface (p. 6, second full paragraph, non-final Office action mailed June 1, 2006), there is nothing disclosed or suggested in the Uchida et al. reference that corresponds to the first plurality of electrodes and the second plurality of electrodes. The Uchida et al. reference fails to disclose or suggest the apparatus for measuring a bio signal having the electrode arrangement as claimed in claim 22.

For at least these reasons, the Uchida et al. reference fails to disclose or suggest the apparatus for measuring a bio signal having the first and the second plurality of electrodes as claimed in claim 22.

Further, applicants respectfully submit that the other prior art references cited by the Examiner also fail to disclose or suggest the apparatus for measuring a bio signal having the first and the second plurality of electrodes as claimed in claim 22. That is, the Mendelson reference, the Nedivi reference, the Dekker reference, the Cosentino et al. reference, and the Diab reference fail to disclose or suggest the apparatus for measuring a bio signal having the first and the second plurality of electrodes as claimed in claim 22.

Thus, when considering the prior art as a whole, individually or in combination, applicants respectfully submit that the apparatus for measuring a bio signal having the first and the second plurality of electrodes as claimed in claim 22 is neither disclosed nor suggested.

Since claims 23-27, 30-32, 34-36, and 38-40 are patentable at least by virtue of their dependency on claim 22, applicants respectfully request that the rejection of claims 23-27, 30-32, 34-36, and 38-40 under 35 U.S.C. § 103(a) also be withdrawn.

G. Asserted Obviousness Rejection of Claim 28

In the outstanding non-final Office action, the Examiner rejected claim 28 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference further in view of the Uchida et al. reference, and further in view of the Mendelson reference.

As discussed in section F above, applicants respectfully submit that the Mendelson reference fails to compensate for the deficiencies of the Schulze et al. reference and the Uchida et al. reference. The Schulze et al. reference, the Uchida et al. reference, and the Mendelson reference, individually or in combination, fail to teach or suggest the apparatus for measuring a bio signal having the first and the second plurality of electrodes as claimed in claim 22.

Since claim 28 is at least patentable by virtue of its dependency on claim 22, applicants respectfully request that the rejection of claim 22 under 35 U.S.C. § 103(a) be withdrawn.

H. Asserted Obviousness Rejection of Claims 29 and 33

In the outstanding non-final Office action, the Examiner rejected claims 29 and 33 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference further in view of the Uchida et al. reference, and further in view of the Nedivi reference.

As discussed above in section F above, applicants respectfully submit that the Nedivi reference fails to compensate for the deficiencies of the Schulze et al. reference and the Uchida et al. reference. The Schulze et al. reference, the Uchida et al. reference, and the Nedivi reference, individually or in combination, fail to teach or suggest the apparatus for measuring a bio signal having the first and the second plurality of electrodes as claimed in claim 22.

Since claims 29 and 33 are at least patentable by virtue of their dependency on claim 22, applicants respectfully request that the rejection of claims 29 and 33 under 35 U.S.C. § 103(a) be withdrawn.

I. Asserted Obviousness Rejection of Claim 45

In the outstanding non-final Office action, the Examiner rejected claim 45 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference in view of the Dekker reference.

As discussed above in section C, applicants respectfully submit that the Dekker reference fails to compensate for the deficiencies of the Schulze et al. reference. The Schulze et al. reference and the Dekker reference, individually or in combination, fail to teach or suggest the method of measuring a bio signal having the outputting step as claimed in claim 42.

Since claim 45 is at least patentable by virtue of its dependency on claim 42, applicants respectfully request that the rejection of claim 45 under 35 U.S.C. § 103(a) be withdrawn.

J. Asserted Obviousness Rejection of Claims 16 and 20

In the outstanding non-final Office action, the Examiner rejected claims 16 and 20 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference in view of the Cosentino et al. reference.

As discussed above in section C, applicants respectfully submit that the Cosentino et al. reference fails to compensate for the deficiencies of the Schulze et al. reference. The Schulze et al. reference and the Cosentino et al. reference, individually or in combination, fail to teach or suggest the apparatus for measuring a bio signal having the control unit as claimed in claim 1.

Since claims 16 and 20 are at least patentable by virtue of their dependency on claim 1, applicants respectfully request that the rejection of claims 16 and 20 under 35 U.S.C. § 103(a) be withdrawn.

K. Asserted Obviousness Rejection of Claims 37 and 41

In the outstanding non-final Office action, the Examiner rejected claims 37 and 41 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference, further in view of the Uchida et al. reference, and further in view of the Cosentino et al. reference.

As discussed in section F above, applicants respectfully submit that the Cosentino et al. reference fails to compensate for the deficiencies of the Schulze et al. reference and the Uchida et al. reference. The Schulze et al. reference, the Uchida et al. reference, and the Cosentino et al. reference, individually or in combination, fail to teach or suggest the apparatus for measuring a bio signal having the first and the second plurality of electrodes as claimed in claim 22.

Since claims 37 and 41 are at least patentable by virtue of their dependency on claim 22, applicants respectfully request that the rejection of claims 37 and 41 under 35 U.S.C. § 103(a) be withdrawn.

L. Asserted Obviousness Rejection of Claim 46

In the outstanding non-final Office action, the Examiner rejected claim 46 under 35 U.S.C. § 103(a) as being unpatentable over the Schulze et al. reference in view of the Diab reference.

As discussed above in section C, applicants respectfully submit that the Diab reference fails to compensate for the deficiencies of the Schulze et al. reference. The Schulze et al. reference and the Diab reference, individually or in combination, fail to teach or suggest the method of measuring a bio signal having the outputting step as claimed in claim 42.

Since claim 46 is at least patentable by virtue of its dependency on claim 42, applicants respectfully request that the rejection of claim 46 under 35 U.S.C. § 103(a) be withdrawn.

M. Conclusion


If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing amendments and remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all the claims is hereby requested.

Respectfully submitted,

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PETITION and
DEPOSIT ACCOUNT CHARGE AUTHORIZATION

This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.